Fundamentals of Health Workflow Process Analysis and Redesign

Process Mapping Theory and Rationale

Lecture a

This material Comp10_Unit2a was developed by Duke University, funded by the Department of Health and Human Services, Office of the National Coordinator for Health Information Technology under Award Number IU24OC000024.
Process Mapping Theory and Rationale

Learning Objectives

1. Articulate the value of process mapping. (Lecture a)
2. Describe standard process mapping symbols and conventions. (Lecture a)
3. Analyze an existing workflow process chart in terms of the information that could be generated, and the sequence of steps that are being communicated. (Lecture b)
4. Choose the correct scope and detail level for a process map. (Lecture b)
5. Choose an appropriate process mapping methodology. (Lecture b)
6. Create a process map for a health care system (or system component) using correct symbols and conventions. (Lecture b)
Unit 2 Lecture a Topics

• Purpose of graphic process representation
• Process diagram vocabulary
• Identifying process steps
• Basic flowchart symbols
• Creating a basic flowchart
Communicating with Symbols

Since the beginning of human history, people have used symbols to communicate.

(Caveman, ~17000 years ago)
Humans perceive meaning directly from symbols
Process Maps Provide

- A pictorial representation of the “whole”
- A commonly understood representation of a process
- A way to focus attention on important aspects
- A way to make the process explicit
- A way to document and share knowledge about a process
Example: Process Perspectives

• Looking up a restaurant phone number in the yellow pages involves:
  – Physical and mental steps
  – Exchange of information
• This process can be described at different detail levels
  – “Obtain phone number”
• Versus
  – Open search engine
  – Find electronic yellow pages
  – Type text name of restaurant and zip code
  – Visually inspect returned results
  – Select the one you were looking for
Process Vocabulary

- Process
- Process map, process diagram
- Task
- Workflow
- Data flow
- Flowchart
- Notation
- Symbols
Process

• A process is a series of steps and decisions involved in the way work is accomplished.
• Everything we do in our lives involves processes.
• The health care system is an interconnected web of many processes.
Process Map

• A visual representation of a process that shows
  – The boundaries, i.e. where the process begins and ends
  – The steps or tasks in the process
  – The sequence or order of the steps
• Use standard symbols so that a process map created by one person can be understood and used by others
• Different approaches use different symbol sets
• Also called process diagrams and flowcharts
Task

• A step in a process
• Types of tasks
  – Physical
  – Mental
  – Computational
• Some tasks may be broken down into smaller tasks
• Primitive tasks can not be broken down into smaller tasks
Example: Process Tasks

List the process tasks required to schedule an appointment with your physician using an on-line scheduler.
Task List

1. Identify the need for an appointment
2. Sign on to a computer
3. Open a search engine
4. Find electronic scheduler for your physician
5. Search for acceptable dates and times
6. Visually inspect returned results
7. Select the date and time
8. Confirm the date and time
Workflow versus Dataflow

• Workflow is usually defined as a sequence of connected steps or tasks.
• Dataflow involves the transformations (operations) performed on data as it moves within and between systems.
• Data and information are often part of workflow, and vice versa.
Workflow

• We care about the physical, mental, and computational steps that occur.
• In the phone number example, these steps are:
  – Clicking the mouse to open the browser,
  – Clicking to open the search engine,
  – Typing in the search text,
  – Results being returned, and
  – Scrolling and assessment of each result.
Dataflow

• Data and information content
• Care about:
  – The data points that are being communicated or transferred
  – Where the data are stored
  – How those data are transformed
• In the phone number example, we care about:
  – Where the name of the restaurant is stored
  – The data values returned by the search
  – Where the data are stored
Workflow versus Dataflow

- Tasks and information: two distinct things
- Sometimes the importance of one will be less, in which case, one representation is sufficient.
- Often, both are important and a diagram(s) for each is required.
Flowchart

Defining aspects:

• Shows step by step progression through a process
• Uses standard symbols
• Depicts logic or decision points and thus, paths
Notation and Symbols

• Notation:
  – Used to refer to the shapes and conventions used to diagram a process
  – Several different notation formalisms in use today

• Symbols:
  – Shapes used to create a diagram.
  – For example, a diamond represents a decision point
    • In most notations
Flowchart Symbols

- **terminal** identifies the beginning or end of a process or origin and destination of data
- **process** designates an activity or task
- **decision** designates a decision point from which the process branches into two or more paths
- **document** designates a human readable document pertinent to the process
- **arrow** represents a process path, the arrowhead indicates the direction of the flow
- **continuation** designates continuation of flow
Flowchart Symbol Example

- **Terminal**: Represents the end of the flowchart.
- **Process**: Represents the main steps in the process.
- **Decision**: Represents a decision point in the process.
- **Document**: Represents the input or output of information.

**Flowchart Example**:

1. **Lamp doesn’t work**
   - **Decision**: Lamp plugged in?
     - **Yes**: Bulb burned out?
       - **Yes**: Replace bulb
       - **No**: Plug lamp in
     - **No**: Buy new lamp
   - **No**: Plug lamp in
Flowchart Example

Examine the flowchart closely. Take a few minutes and list the symbols that are correctly and incorrectly used according to the flowchart symbols on the previous slide.
Example: Patient Intake

A patient arrives at the health care clinic and is signed in by the receptionist. The receptionist enters the patient into a visit system as present and confirms the contact and insurance information with the patient. At this point the patient is ready to be seen by the nurse who will conduct the initial examination and interview with the patient. The nurse pulls the chart from the filing stacks and calls the patient to the exam area and escorts the patient to the exam room, interviews the patient regarding symptoms and/or complaints and records into the nurses/progress notes, and takes and records vital signs in progress notes. She/he then alerts the Physician that the patient is ready to be seen. Subsequently, the Physician examines the patient and records findings in the progress notes, determines if a prescription, procedure, lab work or a referral is required and completes the necessary paperwork if applicable. The Physician provides any additional instructions to the patient and concludes the visit. Finally, the Physician provides the patient chart to the office staff for refiling and the office staff refiles the patient chart. Also, the patient pays her co-pay and concludes the office visit.
Patient Intake and Clinic Visit

1. Patient arrives at the clinic and signs-in and checks-in with the front desk.
2. Receptionist enters the patient into the visit system as present and confirms the contact and insurance information with the patient.
3. The nurse pulls the chart from the filing stacks and calls the patient to the exam area and escorts the patient to the exam room.
4. The nurse interviews the patient regarding symptoms and/or complaints and records into the Nurses/Progress notes.
5. Nurse takes and records vital signs in progress notes and alerts the Physician that the patient is ready to be seen.
6. The Physician examines the patient and records findings in the progress notes.
7. The Physician determines if a prescription, procedure, lab work or a referral is required and completes the necessary paperwork if applicable.
8. The Physician provides any additional instructions to the patient and concludes the visit.
9. The Physician provides the patient chart to the office staff for refiling.
10. The office staff refiles the patient chart.
11. The patient pays their co-pay and concludes the office visit.
Flowchart

Patient arrives

Sign-in at front desk

Confirm insurance

Mark patient As arrived

Confirm Contact info.

Pull chart

Escort to exam room

Record chief Complaint, vitals

Notify provider Patient ready

1
Flowchart - Cont

1. Examine Patient

Order Req?

2. Write order

Educate patient

Dictate clinic note

Patient co-pay & exit

Visit closed

Re-file chart

2 — another process not in scope
Process Mapping Theory and Rationale

Summary – Lecture a

• In this lecture we have
  – Described the value of process diagrams
  – Given an example list of the process steps from a health care scenario
  – Described basic flowchart symbols

• At this point you should be able to
  – List the information generated or used in the process and the sequence of workflow steps when given a workflow process chart consisting of basic flowcharting symbols
  – Read a scenario and using basic flowchart symbols representing the process steps and their sequence
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References

- ISO/ANSI 5807 Information processing - Documentation symbols and conventions for data, program and system flowcharts, program network charts and system resources charts. 1985.
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References – Lecture a

Images


